

CLAIMS

1. A process for the catalytic cracking of a hydrocarbon, characterized in that the catalytic cracking is carried out in the presence of a crystalline aluminosilicate zeolite catalyst carrying a rare earth element in an amount ranging from 0.4 to 20 in terms of atomic ratio relative to the aluminum of the zeolite using a reactor which permits continuous regeneration of the catalyst and which is of a fluidized bed type, a moving bed type, or a transfer line reaction type under reaction conditions involving a reaction temperature ranging from 500 to 700°C, a reaction pressure ranging from 50 to 500 kPa, a steam to hydrocarbon mass ratio ranging from 0.01 to 2, a catalyst to hydrocarbon mass ratio ranging from 15 to 50, and a contacting time ranging from 0.1 to 10 seconds.
2. A process for the catalytic cracking of a hydrocarbon as defined in claim 1, wherein the rare earth element is at least one member selected from the group consisting of lanthanum, cerium, praseodymium, neodymium, samarium, gadolinium, and dysprosium.
3. A process for the catalytic cracking of a hydrocarbon as defined in claim 1, wherein the rare earth element is carried in an amount ranging from 0.6 to 5 in terms of atomic ratio relative to aluminum of the zeolite.
4. A process for the catalytic cracking of a hydrocarbon as defined in claim 1, wherein the zeolite has a $\text{SiO}_2/\text{Al}_2\text{O}_3$ molar ratio ranging from 25 to 800.
5. A process for the catalytic cracking of a hydrocarbon as defined in claim 1, wherein the steam to hydrocarbon mass ratio ranges from 0.1 to 1.
6. A process for the catalytic cracking of a hydrocarbon as defined in claim 1, wherein the contacting time ranges from 0.5 to 5 seconds.